

What is claimed is:

1. An internal combustion engine including a two-stroke engine for a handheld portable work apparatus, the internal combustion engine comprising:

5 an outlet for discharging exhaust gases in a flow direction from said engine;

an exhaust-gas muffler having an inlet opening for receiving said exhaust gases; and,

10 at least one resonance pipe arranged in said flow direction between said outlet and said inlet opening for fluidly connecting said outlet to said inlet.

2. The internal combustion engine of claim 1, wherein said resonance pipe has a diaphragm for opening into said exhaust-gas muffler.

3. The internal combustion engine of claim 2, wherein said diaphragm has an equivalent diameter ( $d$ ,  $d'$ ) measured in millimeters which amounts approximately 1 to 3 times the square root of the volume of the piston displacement of said engine with said volume being measured in cubic centimeters.

4. The internal combustion engine of claim 2, wherein said diaphragm has an equivalent diameter ( $d$ ,  $d'$ ) measured in millimeters which amounts approximately 1.2 to 2.4 times the square root of the volume of the piston displacement of said engine with said volume being measured in cubic centimeters.

5. The internal combustion engine of claim 3, wherein said

equivalent diameter ( $d, d'$ ) is variable.

5 6. The internal combustion engine of claim 4, wherein said resonance pipe has an equivalent diameter ( $D, D'$ ) measured in millimeters which amounts to approximately 2.5 to 6 times the square root of the volume of the piston displacement of said engine with said volume being measured in cubic centimeters.

7. The internal combustion engine of claim 6, wherein said equivalent diameter ( $D, D'$ ) of said resonance pipe is approximately constant over the length ( $L, L'$ ) thereof.

8. The internal combustion engine of claim 7, wherein said length ( $L, L'$ ) of said resonance pipe is matched to the engine speed (rpm) of said engine.

9. The internal combustion engine of claim 8, wherein said length ( $L, L'$ ) of said resonance pipe is matched to 60% to 100% of the rated rpm of said engine speed (rpm).

10. The internal combustion engine of claim 1, wherein said resonance pipe is one of a plurality of resonance pipes.

11. The internal combustion engine of claim 10, wherein the inlet in at least one of said resonance pipes is closeable.

12. The internal combustion engine of claim 10, wherein at least one inlet opening into said exhaust-gas muffler is configured to be closeable.